EBERLINE SERVICES

0060788

August 26, 2003

Mr. Steve Trent
Fluor Hanford Inc.
825 Jadwin Avenue
Richland, WA 99352

Reference: **P.O. #630**
Eberline Services R3-07-015-7543, SDG H2275

Dear Mr. Trent:

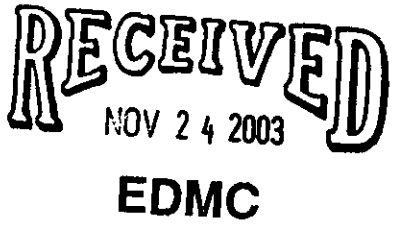
Enclosed is the data report for one solid sample designated under SAF No. F03-006 received at Eberline Services on July 8, 2003. The sample was analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Program Manager



MCM

Enclosure: Data Package

Analytical Services
2030 Wright Avenue
P.O. Box 4040
Richmond, California 94804-0040
(510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H2275 was composed of one solid (soil) sample designated under SAF No. F03-006 with a Project Designation of: 200-PW-2/200-PW-4 OU – Borehole Soil Sampling.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist.

2.0 ANALYSIS NOTES

2.1 Tritium Analyses

No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.4 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.5 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

2.6 Iodine-129 Analyses

No problems were encountered during the course of the analyses.

2.7 Isotopic Thorium Analyses

There was Th-230 activity in the method blank (0.33 pCi/g). The activity was less than the RDL (1.0 pCi/g) for Th-230. No other problems were encountered during the course of the analyses.

2.8 Neptunium-237 Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Melissa Mannion

Melissa C. Mannion
Program Manager

8/26/13

Date

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP H2275

SDG	7543
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 630
Case no	SDG_H2275

S U M M A R Y D A T A S E C T I O N

T A B L E O F C O N T E N T S

About this section	1
Sample Summaries	3
Prep Batch Summary	5
Work Summary	6
Method Blanks	8
Lab Control Samples	9
Duplicates	10
Matrix Spikes	11
Data Sheets	12
Method Summaries	13
Report Guides	21
End of Section	35

Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	08/26/03

SDG 7543
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H2275

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/26/03

SDG 7543
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG_H2275

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/26/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2275

LAB SAMPLE SUMMARY

SDG 7543
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H2275

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R307015-01	B173T6	216-A-36B (C3248)	SOLID		F03-006	F03-006-192	07/01/03 08:30
R307015-02	Lab Control Sample		SOLID		F03-006		
R307015-03	Method Blank		SOLID		F03-006		
R307015-04	Duplicate (R307015-01)	216-A-36B (C3248)	SOLID		F03-006		07/01/03 08:30
R307015-05	Spike (R307015-01)	216-A-36B (C3248)	SOLID		F03-006		07/01/03 08:30

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 08/26/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2275

QC SUMMARY

SDG 7543
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H2275

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7543	F03-006-192	B173T6	SOLID	94.9	197.3 g		07/08/03	7	R307015-01	7543-001
		Method Blank	SOLID						R307015-03	7543-003
		Lab Control Sample	SOLID						R307015-02	7543-002
		Duplicate (R307015-01)	SOLID	94.9	197.3 g		07/08/03	7	R307015-04	7543-004
		Spike (R307015-01)	SOLID	94.9	197.3 g		07/08/03	7	R307015-05	7543-005

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 08/26/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2275

PREP BATCH SUMMARY

SDG 7543
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H2275

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
NP	SOLID	Neptunium in Soil	7071-112	5.0	1			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Soil	7071-112	5.0	1			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	7071-112	10.0	1			1	1	1/1		
TC	SOLID	Technetium 99 in Soil	7071-112	10.0	1			1	1	1/1		
Gamma Spectroscopy												
I	SOLID	Iodine 129 in Soil	7071-112	10.0	1			1	1	1/1		
Liquid Scintillation Counting												
C	SOLID	Carbon 14 in Soil	7071-112	10.0	1			1	1	1/1		
H	SOLID	Tritium in Soil	7071-112	10.0	1			1	1	1/1	1/1	X
NI_L	SOLID	Nickel 63 in Soil	7071-112	10.0	1			1	1	1/1		

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 08/26/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2275

LAB WORK SUMMARY

SDG 7543
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H2275

LAB SAMPLE / COLLECTED / RECEIVED	CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R307015-01	B173T6			7543-001	C		07/29/03	08/25/03	MWT	Carbon 14 in Soil
07/01/03	216-A-36B (C3248)		SOLID	7543-001	H		08/22/03	08/25/03	MWT	Tritium in Soil
07/08/03	F03-006-192	F03-006		7543-001	I		08/13/03	08/25/03	MWT	Iodine 129 in Soil
				7543-001	NI_L		08/13/03	08/25/03	MWT	Nickel 63 in Soil
				7543-001	NP		08/14/03	08/25/03	MWT	Neptunium in Soil
				7543-001	SR		08/15/03	08/25/03	MWT	Total Strontium in Soil
				7543-001	TC		08/18/03	08/25/03	MWT	Technetium 99 in Soil
				7543-001	TH		08/19/03	08/25/03	MWT	Thorium, Isotopic in Soil
R307015-02	Lab Control Sample			7543-002	C		07/29/03	08/25/03	MWT	Carbon 14 in Soil
			SOLID	7543-002	H		08/22/03	08/25/03	MWT	Tritium in Soil
		F03-006		7543-002	I		08/14/03	08/25/03	MWT	Iodine 129 in Soil
				7543-002	NI_L		08/13/03	08/25/03	MWT	Nickel 63 in Soil
				7543-002	NP		08/14/03	08/25/03	MWT	Neptunium in Soil
				7543-002	SR		08/15/03	08/25/03	MWT	Total Strontium in Soil
				7543-002	TC		08/18/03	08/25/03	MWT	Technetium 99 in Soil
				7543-002	TH		08/19/03	08/25/03	MWT	Thorium, Isotopic in Soil
R307015-03	Method Blank			7543-003	C		07/28/03	08/25/03	MWT	Carbon 14 in Soil
			SOLID	7543-003	H		08/22/03	08/25/03	MWT	Tritium in Soil
		F03-006		7543-003	I		08/14/03	08/25/03	MWT	Iodine 129 in Soil
				7543-003	NI_L		08/13/03	08/25/03	MWT	Nickel 63 in Soil
				7543-003	NP		08/14/03	08/25/03	MWT	Neptunium in Soil
				7543-003	SR		08/15/03	08/25/03	MWT	Total Strontium in Soil
				7543-003	TC		08/19/03	08/25/03	MWT	Technetium 99 in Soil
				7543-003	TH		08/19/03	08/25/03	MWT	Thorium, Isotopic in Soil
R307015-04	Duplicate (R307015-01)			7543-004	C		07/29/03	08/25/03	MWT	Carbon 14 in Soil
07/01/03	216-A-36B (C3248)		SOLID	7543-004	H		08/22/03	08/25/03	MWT	Tritium in Soil
07/08/03		F03-006		7543-004	I		08/15/03	08/25/03	MWT	Iodine 129 in Soil
				7543-004	NI_L		08/13/03	08/25/03	MWT	Nickel 63 in Soil
				7543-004	NP		08/14/03	08/25/03	MWT	Neptunium in Soil
				7543-004	SR		08/15/03	08/25/03	MWT	Total Strontium in Soil
				7543-004	TC		08/19/03	08/25/03	MWT	Technetium 99 in Soil
				7543-004	TH		08/19/03	08/25/03	MWT	Thorium, Isotopic in Soil
R307015-05	Spike (R307015-01)			7543-005	H		08/22/03	08/25/03	MWT	Tritium in Soil
07/01/03	216-A-36B (C3248)		SOLID							
07/08/03		F03-006								

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 08/26/03

SDG 7543
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H2275

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
C	F03-006	Carbon 14 in Soil	C14_COX_LSC	1			1	1	1		4
H	F03-006	Tritium in Soil	906.0_H3_LSC	1			1	1	1	1	5
I	F03-006	Iodine 129 in Soil	I129_SEP_LEPS_GS	1			1	1	1		4
NI_L	F03-006	Nickel 63 in Soil	NI63_LSC	1			1	1	1		4
NP	F03-006	Neptunium in Soil	NP237_LLE_PLATE_AEA	1			1	1	1		4
SR	F03-006	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	1			1	1	1		4
TC	F03-006	Technetium 99 in Soil	TC99_TR_SEP_LSC	1			1	1	1		4
TH	F03-006	Thorium, Isotopic in Soil	THISO_IE_PLATE_AEA	1			1	1	1		4
TOTALS				8			8	8	8	1	33

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 08/26/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2275

7543-003 **Method Blank**

METHOD BLANK

SDG 7543 Client/Case no Hanford SDG H2275
Contact Melissa C. Mannion Contract No. 630

Lab sample id R307015-03 Client sample id Method Blank
Dept sample id 7543-003 Material/Matrix SOLID
SAF No F03-006

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.003	0.17	0.29	400	U	H
Carbon 14	14762-75-5	-0.511	1.5	2.6	50	U	C
Nickel 63	13981-37-8	-0.434	1.3	2.2	30	U	NI_L
Total Strontium	SR-RAD	-0.059	0.15	0.34	1.0	U	SR
Technetium 99	14133-76-7	0.008	0.13	0.30	15	U	TC
Thorium 228	14274-82-9	0.060	0.060	0.23		U	TH
Thorium 230	14269-63-7	0.330	0.24	0.23	1.0		TH
Thorium 232	TH-232	0.030	0.060	0.23	1.0	U	TH
Neptunium 237	13994-20-2	0	0.10	0.15	1.0	U	NP
Iodine 129	15046-84-1	-0.007	0.27	0.60	2.0	U	I

200-PW-2/200-PW-4 OU-Borehole Soil

QC-BLANK #45114

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 08/26/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2275

7543-002

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7543
Contact Melissa C. Mannion

Client/Case no Hanford SDG H2275
Contract No. 630

Lab sample id R307015-02
Dept sample id 7543-002

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No F03-006

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	12.8	0.41	0.28	400		H	12.8	0.51	100	83-117	80-120
Carbon 14	1680	17	3.8	50		C	1740	70	97	84-116	80-120
Nickel 63	225	4.5	2.2	30		NI_L	228	9.1	99	84-116	80-120
Total Strontium	20.7	0.82	0.25	1.0		SR	20.9	0.84	99	83-117	80-120
Technetium 99	110	5.6	0.35	15		TC	109	4.4	101	82-118	80-120
Thorium 230	37.3	4.1	0.33	1.0	B	TH	40.8	1.6	91	82-118	80-120
Neptunium 237	20.7	2.0	0.14	1.0		NP	19.9	0.80	104	82-118	80-120
Iodine 129	123	1.4	1.6	2.0		I	116	4.6	106	83-117	80-120

200-PW-2/200-PW-4 OU-Borehole Soil

QC-LCS #45113

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 08/26/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2275

7543-004 B173T6

DUPLICATE

SDG 7543 Client/Case no Hanford SDG H2275

Contact Melissa C. Mannion Contract No. 630

DUPLICATE		ORIGINAL			
Lab sample id	R307015-04	Lab sample id	R307015-01	Client sample id	B173T6
Dept sample id	7543-004	Dept sample id	7543-001	Location/Matrix	216-A-36B (C3248) SOLID
		Received	07/08/03	Collected/Weight	07/01/03 08:30 197.3 g
% solids	94.9	% solids	94.9	Custody/SAF No	F03-006-192 F03-006

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Tritium	0.102	0.17	0.28	400	U	H	0.022	0.17	0.28	U	-	
Carbon 14	-1.08	1.5	2.6	50	U	C	1.24	1.9	3.1	U	-	
Nickel 63	-0.242	1.4	2.3	30	U	NI_L	0	1.3	2.2	U	-	
Total Strontium	-0.018	0.15	0.31	1.0	U	SR	0.052	0.17	0.32	U	-	
Technetium 99	0.025	0.14	0.38	15	U	TC	0.034	0.15	0.37	U	-	
Thorium 228	0.330	0.20	0.25			TH	0.213	0.26	0.33	U	43	182
Thorium 230	0.592	0.27	0.25	1.0	B	TH	0.935	0.43	0.33	B	45	100
Thorium 232	0.165	0.20	0.25	1.0	U	TH	0.425	0.26	0.33		88	167
Neptunium 237	0	0.12	0.18	1.0	U	NP	0.040	0.081	0.12	U	-	
Iodine 129	-0.053	0.41	0.92	2.0	U	I	0.073	0.39	0.88	U	-	

200-PW-2/200-PW-4 OU-Borehole Soil

QC-DUP#1 45115

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 08/26/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2275

7543-005 B173T6

MATRIX SPIKE

SDG 7543		Client/Case no Hanford	SDG H2275
Contact Melissa C. Mannion		Contract No. 630	
MATRIX SPIKE	ORIGINAL		
Lab sample id R307015-05	Lab sample id R307015-01	Client sample id B173T6	
Dept sample id 7543-005	Dept sample id 7543-001	Location/Matrix 216-A-36B (C3248)	SOLID
	Received 07/08/03	Collected/Weight 07/01/03 08:30	197.3 g
% solids 94.9	% solids 94.9	Custody/SAF No F03-006-192	F03-006

ANALYTE	SPIKE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	ORIGINAL pCi/g	2σ ERR (COUNT)	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	45.1	0.71	0.27	400	X	H	49.7	2.0	0.022	0.17	91	85-115	60-140

200-PW-2/200-PW-4 OU-Borehole Soil

QC-MS#1 45116

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-MS
Version 3.06
Report date 08/26/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2275

7543-001 B173T6

DATA SHEET

SDG	7543	Client/Case no	Hanford SDG H2275
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R307015-01	Client sample id	B173T6
Dept sample id	7543-001	Location/Matrix	216-A-36B (C3248) SOLID
Received	07/08/03	Collected/Weight	07/01/03 08:30 197.3 g
% solids	94.9	Custody/SAF No	F03-006-192 F03-006

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.022	0.17	0.28	400	U	H
Carbon 14	14762-75-5	1.24	1.9	3.1	50	U	C
Nickel 63	13981-37-8	0	1.3	2.2	30	U	NI_L
Total Strontium	SR-RAD	0.052	0.17	0.32	1.0	U	SR
Technetium 99	14133-76-7	0.034	0.15	0.37	15	U	TC
Thorium 228	14274-82-9	0.213	0.26	0.33		U	TH
Thorium 230	14269-63-7	0.935	0.43	0.33	1.0	B	TH
Thorium 232	TH-232	0.425	0.26	0.33	1.0		TH
Neptunium 237	13994-20-2	0.040	0.081	0.12	1.0	U	NP
Iodine 129	15046-84-1	0.073	0.39	0.88	2.0	U	I

200-PW-2/200-PW-4 OU-Borehole Soil

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/26/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2275

Test NP Matrix SOLID
SDG 7543
Contact Melissa C. Mannion

LAB METHOD SUMMARY

NEPTUNIUM IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2275

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Neptunium 237
Preparation batch 7071-112					
R307015-01			7543-001	B173T6	U
R307015-02			7543-002	LCS (QC ID=45113)	ok
R307015-03			7543-003	BLK (QC ID=45114)	U
R307015-04			7543-004	Duplicate (R307015-01)	- U
Nominal values and limits from method 200-PW-2/200-PW-4 OU-Borehole Soil				RDLs (pCi/g)	1.0

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7071-112 2σ prep error 5.0 % Reference Lab Notebook 7071 pg. 112																
R307015-01			B173T6	0.12	0.500			60	105				44	08/13/03	08/14	SS-055
R307015-02			LCS (QC ID=45113)	0.14	0.500			54	106					08/13/03	08/14	SS-056
R307015-03			BLK (QC ID=45114)	0.15	0.500			50	106					08/13/03	08/14	SS-057
R307015-04			Duplicate (R307015-01) (QC ID=45115)	0.18	0.500			44	106				44	08/13/03	08/14	SS-058
Nominal values and limits from method				1.0	0.500			20-105		100			180			

PROCEDURES	REFERENCE	
	NP237_LLE_PLATE_AEA	
	CP-061	Determinatioin of Moisture Content in Solid Samples, rev 1
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-930	Neptunium from Solids and Water by Extraction Chromatography, rev 0
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.15 ± 0.050
YIELD 52 ± 13

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/26/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2275

Test TH Matrix SOLID
SDG 7543
Contact Melissa C. Mannion

LAB METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2275

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Thorium 230
Preparation batch 7071-112					
R307015-01			7543-001	B173T6	0.935
R307015-02			7543-002	LCS (QC ID=45113)	ok
R307015-03			7543-003	BLK (QC ID=45114)	0.330
R307015-04			7543-004	Duplicate (R307015-01)	ok
Nominal values and limits from method				RDLs (pCi/g)	1.0
200-PW-2/200-PW-4 OU-Borehole Soil					

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7071-112			2σ prep error 5.0 %	Reference Lab Notebook 7071 pg. 112												
R307015-01			B173T6	0.33	0.250			76		152			49	08/19/03	08/19	SS-028
R307015-02			LCS (QC ID=45113)	0.33	0.250			83		141				08/19/03	08/19	SS-029
R307015-03			BLK (QC ID=45114)	0.23	0.250			90		201				08/19/03	08/19	SS-035
R307015-04			Duplicate (R307015-01) (QC ID=45115)	0.25	0.250			84		201			49	08/19/03	08/19	SS-036
Nominal values and limits from method				1.0	0.250			20-105		150			180			

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
	CP-061	Determinatioin of Moisture Content in Solid Samples, rev 1
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-900	Thorium in Water and Dissolved Solid Samples by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD FOR 4 SAMPLES				
	MDA	0.28	±	0.11
	YIELD	83	±	11

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/26/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2275

Test SR Matrix SOLID
SDG 7543
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H2275

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Total Strontium
Preparation batch 7071-112					
R307015-01			7543-001	B173T6	U
R307015-02			7543-002	LCS (QC ID=45113)	ok
R307015-03			7543-003	BLK (QC ID=45114)	U
R307015-04			7543-004	Duplicate (R307015-01)	- U
Nominal values and limits from method 200-PW-2/200-PW-4 OU-Borehole Soil				RDLs (pCi/g)	1.0

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7071-112			2σ prep error 10.0 % Reference Lab Notebook 7071 pg. 112													
R307015-01			B173T6	0.32	1.00			86		100			45	08/15/03	08/15	GRB-224
R307015-02			LCS (QC ID=45113)	0.25	1.00			84		100				08/15/03	08/15	GRB-217
R307015-03			BLK (QC ID=45114)	0.34	1.00			79		100				08/15/03	08/15	GRB-230
R307015-04			Duplicate (R307015-01) (QC ID=45115)	0.31	1.00			92		100			45	08/15/03	08/15	GRB-232
Nominal values and limits from method				1.0	1.00			30-105		100			180			

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	CP-061	Determinatioin of Moisture Content in Solid Samples, rev 1
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-381	Strontium in Solids, rev 1

AVERAGES ± 2 SD FOR 4 SAMPLES			
	MDA	0.30	± 0.077
	YIELD	85	± 11

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/26/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2275

Test TC Matrix SOLID
SDG 7543
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TECHNETIUM 99 IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H2275

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Technetium 99	
Preparation batch 7071-112						
R307015-01			7543-001	B173T6	U	
R307015-02			7543-002	LCS (QC ID=45113)	ok	
R307015-03			7543-003	BLK (QC ID=45114)	U	
R307015-04			7543-004	Duplicate (R307015-01)	-	U
Nominal values and limits from method				RDLs (pCi/g)	15	
200-PW-2/200-PW-4 OU-Borehole Soil						

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7071-112			2σ prep error 10.0 %	Reference Lab Notebook 7071 pg. 112												
R307015-01			B173T6	0.37	1.02			94		100			48	08/14/03	08/18	GRB-221
R307015-02			LCS (QC ID=45113)	0.35	1.00			97		100				08/14/03	08/18	GRB-222
R307015-03			BLK (QC ID=45114)	0.30	1.00			93		169				08/14/03	08/19	GRB-232
R307015-04			Duplicate (R307015-01) (QC ID=45115)	0.38	1.02			92		100			49	08/14/03	08/19	GRB-221
Nominal values and limits from method				15	1.00			20-105		50			180			

PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-021	Preparation of Tc-99m Tracer, rev 2
	CP-002	Q.C. Preparation, rev 4
	CP-003	Addition of Carriers and Tracers, rev 5
	CP-542	Technetium-99 Purification (Soil) by Extraction Chromatography, rev 2
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD FOR 4 SAMPLES			
	MDA	0.35	± 0.071
	YIELD	94	± 4

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/26/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2275

Test I___ Matrix SOLID
SDG 7543
Contact Melissa C. Mannion

LAB METHOD SUMMARY

IODINE 129 IN SOIL
GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2275

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Iodine 129	
Preparation batch 7071-112						
R307015-01			7543-001	B173T6	U	
R307015-02			7543-002	LCS (QC ID=45113)	ok	
R307015-03			7543-003	BLK (QC ID=45114)	U	
R307015-04			7543-004	Duplicate (R307015-01)	-	U
Nominal values and limits from method 200-PW-2/200-PW-4 OU-Borehole Soil				RDLs (pCi/g)	2.0	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7071-112 2σ prep error 10.0 % Reference Lab Notebook 7071 pg. 112																
R307015-01			B173T6	0.88	1.02			66		895			43	08/13/03	08/13	XSPEC-004
R307015-02			LCS (QC ID=45113)	1.6	1.00			94		608				08/13/03	08/14	XSPEC-004
R307015-03			BLK (QC ID=45114)	0.60	1.00			94		969				08/13/03	08/14	XSPEC-004
R307015-04			Duplicate (R307015-01) (QC ID=45115)	0.92	1.02			65		923			45	08/13/03	08/15	XSPEC-004
Nominal values and limits from method				2.0	1.00			20-105		300			180			

PROCEDURES	REFERENCE	
	I129_SEP_LEPS_GS	
	CP-024	Iodine-129, Sample Dissolution, rev 3
	CP-530	Iodine-129 Purification, rev 0

AVERAGES ± 2 SD FOR 4 SAMPLES			
	MDA	1.0	± 0.85
	YIELD	80	± 33

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/26/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2275

Test C Matrix SOLID
SDG 7543
Contact Melissa C. Mannion

LAB METHOD SUMMARY

CARBON 14 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2275

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Carbon 14	
Preparation batch 7071-112						
R307015-01			7543-001	B173T6	U	
R307015-02			7543-002	LCS (QC ID=45113)	ok	
R307015-03			7543-003	BLK (QC ID=45114)	U	
R307015-04			7543-004	Duplicate (R307015-01)	-	U
Nominal values and limits from method				RDLs (pCi/g)	50	
200-PW-2/200-PW-4 OU-Borehole Soil						

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7071-112			2σ prep error 10.0 %		Reference Lab Notebook 7071 pg. 112											
R307015-01			B173T6	3.1	0.301			100		100			28	07/28/03	07/29	LSC-007
R307015-02			LCS (QC ID=45113)	3.8	0.366			100		44				07/28/03	07/29	LSC-007
R307015-03			BLK (QC ID=45114)	2.6	0.366			100		100				07/28/03	07/28	LSC-007
R307015-04			Duplicate (R307015-01) (QC ID=45115)	2.6	0.366			100		100			28	07/28/03	07/29	LSC-007
Nominal values and limits from method				50	0.366					50			180			

PROCEDURES	REFERENCE	
	C14_COX_LSC	
	CP-251	Tritium/Carbon-14 Oxidation, rev 5

AVERAGES ± 2 SD FOR 4 SAMPLES			
	MDA	3.0	± 1.1
	YIELD	100	± 0

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/26/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2275

Test H Matrix SOLID
SDG 7543
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TRITIUM IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2275

RESULTS

LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Tritium	
Preparation batch 7071-112						
R307015-01			7543-001	B173T6	U	
R307015-02			7543-002	LCS (QC ID=45113)	ok	
R307015-03			7543-003	BLK (QC ID=45114)	U	
R307015-04			7543-004	Duplicate (R307015-01)	-	U
R307015-05			7543-005	Spike (R307015-01)	ok	X
Nominal values and limits from method				RDLs (pCi/g)	400	
200-PW-2/200-PW-4 OU-Borehole Soil						

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
Preparation batch 7071-112			2σ prep error 10.0 % Reference Lab Notebook 7071 pg. 112													
R307015-01			B173T6	0.28	20.6			33		120			52	08/15/03	08/22	LSC-006
R307015-02			LCS (QC ID=45113)	0.28	20.0			33		120				08/15/03	08/22	LSC-006
R307015-03			BLK (QC ID=45114)	0.29	20.0			33		120				08/15/03	08/22	LSC-006
R307015-04			Duplicate (R307015-01) (QC ID=45115)	0.28	21.1			32		120			52	08/15/03	08/22	LSC-006
R307015-05			Spike (R307015-01) (QC ID=45116)	0.27	20.8			35		120			52	08/15/03	08/22	LSC-006
Nominal values and limits from method				400	20.0					25			180			

PROCEDURES REFERENCE 906.0_H3_LSC
CP-216 Tritium in Solid Samples by Azeotropic Distillation, rev 6

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 0.28 ± 0.014
YIELD 33 ± 2

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/26/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2275

Test NI_L Matrix SOLID
SDG 7543
Contact Melissa C. Mannion

LAB METHOD SUMMARY

NICKEL 63 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2275

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Nickel 63	
Preparation batch 7071-112						
R307015-01			7543-001	B173T6	U	
R307015-02			7543-002	LCS (QC ID=45113)	ok	
R307015-03			7543-003	BLK (QC ID=45114)	U	
R307015-04			7543-004	Duplicate (R307015-01)	-	U
Nominal values and limits from method				RDLs (pCi/g)	30	
200-PW-2/200-PW-4 OU-Borehole Soil						

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7071-112			2σ prep error 10.0 %				Reference Lab Notebook 7071 pg. 112									
R307015-01			B173T6	2.2	0.500			90	100				43	08/12/03	08/13	LSC-006
R307015-02			LCS (QC ID=45113)	2.2	0.500			91	100					08/12/03	08/13	LSC-006
R307015-03			BLK (QC ID=45114)	2.2	0.500			89	100					08/12/03	08/13	LSC-006
R307015-04			Duplicate (R307015-01) (QC ID=45115)	2.3	0.500			80	100				43	08/12/03	08/13	LSC-006
Nominal values and limits from method				30	0.500			30-105	50				180			

PROCEDURES	REFERENCE	NI63_LSC
	CP-061	Determinatioin of Moisture Content in Solid Samples, rev 1
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-280	Nickel-63 Purification, rev 0

AVERAGES ± 2 SD FOR 4 SAMPLES			
	MDA	2.2	± 0.10
	YIELD	88	± 10

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/26/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2275

SDG 7543
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H2275

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

* LAB SAMPLE ID is the lab's primary identification for a sample.

* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.

* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.

* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

  QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/26/03

SDG 7543
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H2275

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

* The preparation batches are shown in the same order as the Method Summary Reports are printed.

* Only analyses of planchets relevant to the SDG are included.

* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.

* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

  These qualifiers should be reviewed as follows:

  X Some data has been manually entered or modified. Transcription errors are possible.

  P One or more results are 'preliminary'. The data is not ready for final reporting.

  2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

  Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/26/03

SDG 7543
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2275

WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.

* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.

* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.

* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.

* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/26/03

SDG 7543
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2275

DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.

* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

  The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

* ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.

* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.

* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/26/03

DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H Similar to 'L' except the recovery was high.

P The RESULT is 'preliminary'.

X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

SDG 7543
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2275

DATA SHEET

* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.

* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.

* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/26/03

SDG 7543
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2275

LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.

* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

  An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The error of RESULT, including that introduced by rounding the result prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits for the recovery.

* The recovery is underlined if it is outside either of these ranges.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/26/03

SDG 7543
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H2275

DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

  If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

  For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

  If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

  This value reported for this limit is at most 999.

* The second limit for the RPD is the larger of:

  1. A fixed percentage specified in the protocol.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/26/03

SDG 7543
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG_H2275

DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

* The RPD is underlined if it is greater than either limit.

* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

  Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/26/03

SDG 7543
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H2275

MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

  An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/26/03

SDG 7543
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG_H2275

MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/26/03

SDG 7543
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2275

METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

  There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

  The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

  The J and X flags are as on the data sheet.

* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.

* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/26/03

METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.

* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

  MDAs are underlined if greater than the printed RDL.

* Aliquots are underlined if less than the nominal value specified for the method.

* Prepareation factors are underlined if greater than the nominal value specified for the method.

* Dilution factors are underlined if greater than the nominal value specified for the method.

* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.

* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.

* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

METHOD SUMMARY

* Count times are underlined if less than the nominal value specified for the method.

* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.

* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.

* Days Held are underlined if greater than the holding time specified in the protocol.

* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1÷3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-006-192	Page 1 of 1

Collector Pope/Pfister/Hughes/Johansen	**Company Contact** LC Hulstrom **Telephone No.** 373-3928	**Project Coordinator** TRENT, SJ	**Price Code** 8N **Data Turnaround** 45 Days
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling	**Sampling Location** 216-A-36B (C3248) - 12.5-15' H2275 (7543)	**SAF No.** F03-006	**Air Quality** ☐
Ice Chest No. ERC 01-059	**Field Logbook No.** HNF-N-3361 **COA** 117504ES10	**Method of Shipment** Federal Express	
Shipped To EBERLINE SERVICES (Formerly TMA)	**Offsite Property No.** A030 298	**Bill of Lading/Air Bill No.** SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE TIE TO: ~~B173T7 B17491~~ B17490 RE 7.2.03

Special Handling and/or Storage

None

Preservation	Cool 4C	None	None									
Type of Container	aG	aG	aG									
No. of Container(s)	1	1	1									
Volume	60mL	60mL	60mL									
SAMPLE ANALYSIS	NO2/NO3 - 353.2; Oil & Grease - 413.1; Chromium Hex - 7196 B17497	See item (1) in Special Instructions.	Tritium - H3									
Sample No.	Matrix *	Sample Date	Sample Time									
B173T6	SOIL	7-1-03	0830		X	X						

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[illegible]	7-1-3	MO-026 ref 2	7-1-3 1512
MO-026 ref 2	7-2-03 1130	[illegible]	7-2-03 1130
[illegible]	7-2-03 1130	ERC R FAHLBERG	7.2.03 1130
ERC R FAHLBERG	7.2.03 1130	IA 3728	7-2-03 1130
IA 3728	7-2-03 1000	R FAHLBERG	7.7.03 1000
ERC R FAHLBERG	7.7.03 1000	Fed Ex	

SPECIAL INSTRUCTIONS

The lab is to achieve a detection limit of 50.0 pCi/g for C-14. ~~Report kerosene and diesel range compounds from WTPH-D analysis.~~ FH acknowledges that holding times (less than 14 days) may not be met by the lab due to the radl characteristics.

(1) Technetium-99; Strontium-89,90 – Total Sr; Isotopic Thorium (Thorium-232); Carbon-14; Iodine-129; Nickel-63; Neptunium-237

JRC 7-1-03

JR Corso

Received By: JR Corso Company: Eberline Services

Date / Time: 7/8/03 9:30

Matrix *

S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title		Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method		Disposed By	Date/Time

BHI-EE-011 (03/01/2002)

EBERLINE SERVICES

RICHMOND, CA LABORATORY
SAMPLE RECEIPT CHECKLIST

Client: FH-Central Plateau, Hanford Date/Time received 7-8-03 9:30

CoC No. F03-006-192

Container I.D. No. ERC-01-059 Requested TAT (Days) 45 P.O. Received Yes [✓] No [ ]

INSPECTION

1.	Custody seals on shipping container intact?	Yes [✓]	No [ ]	N/A [ ]
2.	Custody seals on shipping container dated & signed?	Yes [✓]	No [ ]	N/A [ ]
3.	Custody seals on sample containers intact?	Yes [✓]	No [ ]	N/A [ ]
4.	Custody seals on sample containers dated & signed?	Yes [✓]	No [ ]	N/A [ ]
5.	Packing material is:	Wet [ ]	Dry [✓]	
6.	Number of samples in shipping container: 1			
7.	Number of containers per sample: 2	(Or see CoC _____)		
8.	Samples are in correct container	Yes [ ]	No [ ]	
9.	Paperwork agrees with samples?	Yes [✓]	No [ ]	
10.	Samples have: Tape [✓] Hazard labels [ ] Rad labels [✓] Appropriate sample labels [✓]			
11.	Samples are: In good condition [✓] Leaking [ ] Broken Container [ ] Missing [ ]			
12.	Samples are: Preserved [ ] Not preserved [ ] pH _____ Preservative _____			
13.	Describe any anomalies: _____			
14.	Was P.M. notified of any anomalies? Yes [✓] No [ ] Date 7-8-03			
15.	Received by [signature] Date: 7-8-03 Time: 9:30			

Customer Sample No.	cpm	mR/hr	wipe	Customer Sample No.	cpm	mR/hr	wipe

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

Beta/Gamma Meter Ser. No. _____ Calibration date _____

LIONVILLE LABORATORY INC.

31 July 2003

Mr. Steve Trent
Fluor Hanford Inc.
825 Jadwin Ave.
Richland, WA 99352

Subject: Contract No. 630
Analytical Data Package

Dear Mr. Trent:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0307L752
SDG #	H2275
SAF #	F03-006
Date Received	7-8-03
# Samples	2
Matrix	Soil
Volatiles	
Semivolatiles	
Pest/PCB	X
DRO/GRO/KRO	
Herbicides	X
GC Alcohol	
Metals	
Inorganics	X

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

r:\group\pm\orlette\tnu-hanford\data\fc_ltrs.doc

Lionville Laboratory, Inc.
PEST/PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-006 H2275

DATE RECEIVED: 07/08/03 LVL LOT # :0307L752

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B173T4	001	S	03LE0802	06/30/03	07/09/03	07/15/03
B173T4	001 MS	S	03LE0802	06/30/03	07/09/03	07/15/03
B173T4	001 MSD	S	03LE0802	06/30/03	07/09/03	07/15/03
LAB QC:						
PBLKXO	MB1	S	03LE0802	N/A	07/09/03	07/15/03
PBLKXO	MB1 BS	S	03LE0802	N/A	07/09/03	07/15/03

7/16/03

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-006
LVL #: 0307L752
SDG/SAF #: H2275/F03-006

W.O. #: 11343-606-001-9999-00
Date Received: 07-08-03

PESTICIDE

One (1) soil sample was collected on 06-30-03.

The sample and its associated QC samples were extracted on 07-09-03 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 07-15-03. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8081A.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.

2. All required holding times for extraction and analysis have been met.

3. The method blank was below the reporting limits for all target compounds.

4. Four (4) of ten (10) surrogate recoveries were outside QC limits; however, the surrogate recovery acceptance criteria were met (i.e., no more than one outlier per sample).

5. All blank spike recoveries were within acceptance criteria.

6. All matrix spike recoveries were within acceptance criteria.

7. All initial calibrations associated with this data set were within acceptance criteria.

8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

7/21/03
Date

pef\r:\group\data\pest\tnu hanford\07L-752.pes

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 9 pages.

GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).

J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

I = Interference.

.I = Indicates an interference on one analytical column only. Result is reported from remaining analytical column.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not Applicable.

DF = *Dilution Factor.*

NR = Not Required.

SP = Indicates Spiked Compound.

GLOSSARY OF PESTICIDE/PCB DATA

P = This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor.

C = This flag applies to a compound that has been confirmed by GC/MS.

Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List — Report Date: 07/16/03 10:33

RFW Batch Number: **0307L752** Client: **TNUHANFORD F03-006 H2275** Work Order: 11343606001 Page: 1

	Cust ID:	B173T4	B173T4	B173T4	PBLKXO	PBLKXO BS
Sample Information	RFW#:	001	001 MS	001 MSD	03LE0802-MB1	03LE0802-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate: Tetrachloro-m-xylene		100 %	90 %	100 %	105 %	75 %
Decachlorobiphenyl		135 * %	120 %	130 * %	130 * %	130 * %
		fl	fl	fl	fl	fl fl
Alpha-BHC		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Beta-BHC		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Delta-BHC		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
gamma-BHC (Lindane)		1.7 U	90 %	96 %	1.7 U	98 %
Heptachlor		1.7 U	80 %	86 %	1.7 U	94 %
Aldrin		1.7 U	80 %	92 %	1.7 U	88 %
Heptachlor epoxide		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Endosulfan I		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Dieldrin		3.4 U	93 %	99 %	3.3 U	105 %
4,4'-DDE		3.4 U	3.4 U	3.4 U	3.3 U	3.3 U
Endrin		3.4 U	100 %	108 %	3.3 U	114 %
Endosulfan II		3.4 U	3.4 U	3.4 U	3.3 U	3.3 U
4,4'-DDD		3.4 U	3.4 U	3.4 U	3.3 U	3.3 U
Endosulfan sulfate		3.4 U	3.4 U	3.4 U	3.3 U	3.3 U
4,4'-DDT		3.4 U	100 %	109 %	3.3 U	99 %
Methoxychlor		17 U	17 U	17 U	17 U	17 U
Endrin ketone		3.4 U	3.4 U	3.4 U	3.3 U	3.3 U
Endrin aldehyde		3.4 U	3.4 U	3.4 U	3.3 U	3.3 U
alpha-Chlordane		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
gamma-Chlordane		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Toxaphene		170 U	170 U	170 U	170 U	170 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

7/16/03

Lionville Laboratory Use Only

0307L752

Custody Transfer Record/Lab Work Request

Page ___ of ___

LVLI LIONVILLE LABORATORY INC.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU HANFORD SAF # F03-006
Est. Final Proj. Sampling Date:
Project #: 11343-606-001-9999-00
Project Contact/Phone #:
Lionville Laboratory Project Manager: OJ
QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 7-8-03 Date Due: 8-7-03

		A	B	C	
Refrigerator #		3	3	3	
#/Type Container	Liquid				
	Solid	1AG	1AG	1AG	⟶
Volume	Liquid				
	Solid	60	60	60	⟶
Preservatives		—	—	⟵	⟶

ANALYSES REQUESTED ⟶ ORGANIC: VOA, BNA, Pest/PCB, Herb; Oil Grease; NO2 NO3; Cr6; INORG: Metal, CN

Lionville Laboratory Use Only: 0608H, 0HBGX, IOGGR, IN3N2, ICR6

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0608H	0HBGX	IOGGR	IN3N2	ICR6
001	B173T4			S	6/30/03	0700	1	1			
002	⊥ 6			L	7/1/03	0830			1	✓	✓

Special Instructions: SAF # F03-006

Run Matrix QC

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

Lionville Laboratory Use Only

Samples were: ✓
1) Shipped ✓ or Hand Delivered ___
Airbill # See Below
2) Ambient or (Chilled)
3) Received in Good Condition (Y) or N
4) Samples Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. 1 °C

Relinquished by	Received by	Date	Time
[signature]	[signature]	7/8/03	093

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
790389362631

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-006-191	
Collector Pope/Pfister/Hughes/Johansen	Company Contact LC Hulstrom	Telephone No. 373-3928	Project Coordinator TRENT, SJ	Price Code 8N / Data Turnaround 45 Days
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling	Sampling Location 216-A-36B (C3248) - 0.5'		SAF No. F03-006	Air Quality ☐
Ice Chest No. ERC 01-041	Field Logbook No. HNF-N-3361	COA 117504ES10	Method of Shipment Federal Express	
Shipped To EBERLINE SERVICES (Formerly TMA)	Offsite Property No. A030 305		Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Potentially Radioactive
Tie To B17490

Special Handling and/or Storage
cool 4°C

Preservation	Cool 4C	Cool 4C		
Type of Container	aG	aG		
No. of Container(s)	1	1		
Volume	60mL	60mL		
SAMPLE ANALYSIS	Pesticides - 8081	Chloro-Herbicides - EPA8151		

Sample No.	Matrix *	Sample Date	Sample Time	Pesticides - 8081	Chloro-Herbicides - EPA8151
B173T4	SOIL	6-30-03	0700	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Kevin Hughes [signature]	6-30 13:44	MO-026 Ref 2	6-30-3 13:44
MO-026 Ref 2	7-2-03 1130	[signature]	7-2-03 1130
[signature]	7-2-03 1130	ERC R FAHLBERG [signature]	7-2-03 1130
ERC R FAHLBERG [signature]	7-2-03 1130	1A 3728	7-2-03 1130
1A 3728	7-2-03 1000	ERC R FAHLBERG [signature]	7-2-03 1000
ERC R FAHLBERG [signature]	7-2-03 1000	FedEx	

SPECIAL INSTRUCTIONS
Report kerosene and diesel range compounds from WTPH-D analysis.

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By [signature]	Title Coord-II	Date/Time 7/8/03 0930
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (03/01/2002)

FH-Central Plateau Project

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Collector Pope/Pfister/Hughes/Johansen	**Company Contact** LC Hulstrom	**Telephone No.** 373-3928	**Project Coordinator** TRENT, SJ
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling	**Sampling Location** 216-A-36B (C3248) - 12.5-15'		**SAF No.** F03-006
Ice Chest No. ERC 01-041	**Field Logbook No.** HNF-N-3361	**COA** 117504ES10	**Method of Shipment** Federal Express
Shipped To MO 7-1-03 ~~EBERLINE SERVICES (Formerly TMA)~~ Richland	**Offsite Property No.** 17030 305		**Bill of Lading/Air Bill No.** SFEOSRC

Price Code 8N **Data Turnaround** 45 Days **Air Quality** ☐

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE TIE TO: ~~B173T7, B174P1~~ B174P0 RS 7-2-03

Special Handling and/or Storage

Cool 4°C

Preservation	Cool 4C	None	None										
Type of Container	aG	aG	aG										
No. of Container(s)	1	1	1										
Volume	60mL	60mL	60mL										
SAMPLE ANALYSIS	NO2/NO3 - 353.2; Oil & Grease - 413.1; Chromium Hex - 7196	See item (1) in Special Instructions.	Tritium - H3										
		7/1/03											
Sample No.	**Matrix ***	**Sample Date**	**Sample Time**										
B173T6	SOIL	7-1-03	0830	X									

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Kevin HUGOES	7-1-3 15:12	MO-026 ref. 2	7-1-3 15:12
MO-026 Ref 2	7-2-03 1130		7-2-03 1130
	7-2-03 1130	ERC FAHLBERG R. Fahlberg	7-2-03 1130
ERC FAHLBERG R. Fahlberg	7.2.03 1130	17 3728	7.2.03 1130
17 3728	7-2-03 1000	ERC FAHLBERG R. Fahlberg	7.2.03 1000
ERC FAHLBERG R. Fahlberg	7.2.03 1000	Fed Ex	

SPECIAL INSTRUCTIONS 7-1-03

~~The lab is to achieve a detection limit of 50.0 pCi/g for C-14.~~ Report kerosene and diesel range compounds from *WTPH-D* analysis. FH acknowledges that holding times (less than 14 days) may not be met by the lab due to the radl characteristics.

7-1-03

~~(*) Technetium-99; Strontium-89,90 – Total Sr, Isotopic Thorium (Thorium-232); Carbon-14; Iodine-129; Nickel-63; Neptunium-237~~

Matrix *

S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time	
		COORD-II	7/8/03 0930	
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time	

BHI-EE-011 (03/01/2002)

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

LIENT: TNU - HANFORD

urchase Order/Project: 200-PW-2/200/PW-4-OU

DATE: 7/8/03

AF#) SOW# / Release #: F03-006

aboratory SDG #: 0307L 752

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1. Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
2. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
3. Airbill # recorded?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
5. Sample containers are intact?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
7. All samples on coc received?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
8. All sample label information matches coc?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	☐ Yes	☑ No	☐ N/A	☐ see Comment #
10. Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
11. Where applicable, bar code labels are affixed to coc?	☐ Yes	☐ No	☑ N/A	☐ see Comment #
12. coc signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
13. coc will be faxed or emailed to client?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
14. Project Manager/Client contacted concerning discrepancies? (name/date)	☐ Yes	☐ No	☑ N/A	☐ see Comment #

Cooler # / temp (°C) and Comments:

ERC-01-041 1°

Laboratory Sample Custodian:

Laboratory Project Manager:

Lionville Laboratory, Inc.
HBGX ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-006 H2275

DATE RECEIVED: 07/08/03 LVL LOT # :0307L752

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B173T4	001	S	03LE0801	06/30/03	07/09/03	07/17/03
B173T4	001 MS	S	03LE0801	06/30/03	07/09/03	07/17/03
B173T4	001 MSD	S	03LE0801	06/30/03	07/09/03	07/17/03
LAB QC:						
PBLKXN	MB1	S	03LE0801	N/A	07/09/03	07/14/03
PBLKXN	MB1 BS	S	03LE0801	N/A	07/09/03	07/14/03

7/14/03

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-006
LVL #: 0307L752
SDG/SAF # H2275/F03-006

W.O. #: 11343-606-001-9999-00
Date Received: 07-08-2003

HERBICIDE

One (1) soil sample was collected on 06-30-2003.

The sample and its associated QC samples were extracted on 07-09-2003 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 07-14,17-2003. The extraction and analysis procedure was based on method 8151A.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from a sample that met LvLI's sample acceptance policy.

2. The required holding time for extraction and analysis has been met.

3. The method blank was below the reporting limits for all target compounds.

4. All surrogate recoveries were within acceptance criteria.

5. All blank spike recoveries were within acceptance criteria.

6. Two (2) of sixteen (16) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

7. All initial calibrations associated with this data set were within acceptance criteria.

8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

3/28/03
Date

som\r:\group\data\herb\tnu\0307-752.doc

208 Welsh Pool Road • Exton, PA 19341-1313 • (610) 280-3000 • Fax (610) 280-3041

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 030C254

Initiator: Bryce Santoro
Date: 7/18/03
Client: TNO

Batch: 030TL752
Samples: MS, MSD
Method: SW846/MCAWW/CLP/

Parameter: OHBFX
Matrix: Soil
Prep Batch: 03LE0801

1. Reason for SDR

a. COC Discrepancy __ Tech Profile Error __ Client Request __ Sampler Error on C-O-C __ Transcription Error __ Wrong Test Code __ Other _____

b. General Discrepancy

__ Missing Sample/Extract* __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
__ Hold Time Exceeded __ Insufficient Sample* __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

(1) Low Dicamba recovery in MS + MSD. BS is good, sample is clean of, target compounds.

2. Known or Probable Causes(s)

(1) Matrix effect

3. Discussion and Proposed Action Other Description: Manual

__ Re-log
__ Entire Batch
__ Following Samples: _____
__ Re-leach
__ Re-extract
__ Re-digest
__ Revise EDD
__ Change Test Code to _____
__ Place On/Take Off Hold (circle)

4. Project Manager Instructions...signature/date: 7/25/03

✓ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
__ Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

5. Final Action...signature/date: 7/28/03 Other Explanation:

__ Verified re-[log][leach][extract][digest][analysis] (circle)
✓ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
__	X Initiator	__	__ Metals: Beegle
✓	X Lab General Manager: M. Taylor	__	__ Inorganic: Perrone
✓	X Project Mgr: Stone/Johnson/Haslett	__	__ GC/LC: Kiger
__	X Technical Mgr: Wesson/Daniels	__	__ MS: Rychlak/Layman
__	X QA (file)	__	__ Log-in: Melnic
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Beegle/Kiger	__	__ Other: _____

VLI
ETOWNVILLE LABORATORY INC.

GLOSSARY OF HERBICIDE DATA

DATA QUALIFIERS

U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).

J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

I = Interference.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

GLOSSARY OF HERBICIDE DATA

P = This flag is used for an Herbicide target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor.

C = This flag applies to a compound that has been confirmed by HPLC.

Lionville Laboratory, Inc.

Herbicides, Special List — Report Date: 07/18/03 10:05

RFW Batch Number: **0307L752** Client: **TNUHANFORD F03-006 H2275** Work Order: 11343606001 Page: 1

	Cust ID:	B173T4	B173T4	B173T4	PBLKXN	PBLKXN BS
Sample Information	RFW#:	001	001 MS	001 MSD	03LE0801-MB1	03LE0801-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg

Surrogate:	DCAA	85 % fl	95 % fl	64 % fl	68 % fl	120 % fl
Dalapon		170 U	101 %	88 %	170 U	127 %
Dicamba		68 U	22 * %	2 * %	67 U	121 %
Dichloroprop		170 U	93 %	63 %	170 U	118 %
2,4-D		34 U	82 %	63 %	33 U	115 %
2,4,5-TP (Silvex)		17 U	104 %	77 %	17 U	114 %
2,4,5-T		17 U	84 %	63 %	17 U	108 %
2,4-DB		170 U	83 %	68 %	170 U	73 %
Dinoseb		17 U	93 %	68 %	17 U	98 %

7/21/03

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Lionville Laboratory Use Only

0307L752

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVL

LIONVILLE LABORATORY INC

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client TNW HANFORD SAF # F03-006

Est. Final Proj. Sampling Date

Project # 11343-606-001-9999-01

Project Contact/Phone #

Lionville Laboratory Project Manager OJ

QC SPEC Del STD TAT 30 days

Date Rec'd 7-8-03 Date Due 8-7-03

		A	B	C
Refrigerator #		3	3	3
#/Type Container	Liquid			
	Solid	1AC	1AC	1AC
Volume	Liquid			
	Solid	60	60	60
Preservatives		—	—	

ANALYSES REQUESTED

ORGANIC: VOA | BNA | Pest/PCB | Herb | Oil & Grease | NH2 NO3 | O Phos

INORG: Metal | CN

Lionville Laboratory Use Only

MATRIX CODES	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0 608Y	0H8GX	IOGGR	IN3N2	ICRL6
S - Soil, SE - Sediment, SO - Solid, SL - Sludge, W - Water, O - Oil, A - Air, DS - Drum Solids, DL - Drum Liquids, L - EP/TCLP Leachate, WI - Wipe, X - Other, F - Fish	001	B17374			S	6/30/3	0700	1	1			
	002	1 6			L	7/1/3	0830			1	✓	✓

Special Instructions: SAF # F03-006

Run Matrix QC

DATE/REVISIONS:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Lionville Laboratory Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # See Below
2) Ambient or Chilled
3) Received in Good Condition (Y) or N
4) Samples Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 1 °C

Relinquished by	Received by	Date	Time
FedEx	[signature]	7/8/03	093

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or (N)

NOTES:

790339362631

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-006-191	Page 1 of 1
Collector: Pope/Pfister/Hughes/Johansen	Company Contact: LC Hulstrom; Telephone No.: 373-3928	Project Coordinator: TRENT, SJ	Price Code 8N; Data Turnaround 45 Days
Project Designation: 200-PW-2/200-PW-4 OU - Borehole Soil Sampling	Sampling Location: 216-A-36B (C3248) - 0.5'	SAF No.: F03-006	Air Quality ☐
Ice Chest No.: ERC 01-041	Field Logbook No.: HNF-N-3361; COA: 117504ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030 305	Bill of Lading/Air Bill No.: SEE ospc	

POSSIBLE SAMPLE HAZARDS/REMARKS
Potentially Radioactive
Tie To B17490

Special Handling and/or Storage
cool 4°C

Preservation	Cool 4C	Cool 4C									
Type of Container	aG	aG									
No. of Container(s)	1	1									
Volume	60mL	60mL									
SAMPLE ANALYSIS	Pesticides - 8081	Chloro-Herbicides - EPA8151									

Sample No.	Matrix *	Sample Date	Sample Time										
B173T4	SOIL	6-30-03	0700	X	X								

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Kevin Nickels [signature]	6-30 13:44	MO-026 Ref2	6-30-3 13:44
MO-026 Ref2	7-2-03 1130	[signature]	7-2-03 1130
[signature]	7-2-03 1130	R FAHLBERG ERC [signature]	7-2-03 1130
ERC R FAHLBERG [signature]	7-2-03 1130	1A 3728	7-2-03 1130
1A 3728	7-2-03 1000	ERC R FAHLBERG [signature]	7-2-03 1000
ERC R FAHLBERG [signature]	7-2-03 1000	FedEx	

SPECIAL INSTRUCTIONS
Report kerosene and diesel range compounds from WTPH-D analysis.

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By: [signature]	Title: Coord - II	Date/Time: 7/8/03 0930
FINAL SAMPLE DISPOSITION	Disposal Method:	Disposed By:	Date/Time:

F03-006-192

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		
Collector: Pope/Pfister/Hughes/Johansen	Company Contact: LC Hulstrom; Telephone No.: 373-3928	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200-PW-2/200-PW-4 OU - Borehole Soil Sampling	Sampling Location: 216-A-36B (C3248) - 12.5-15'	SAF No.: F03-006	Air Quality ☐
Ice Chest No.: ERC 01-041	Field Logbook No.: HNF-N-3361; COA: 117504ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ TMD 7-1-03 Recra	Offsite Property No.: N030 305	Bill of Lading/Air Bill No.: SFF-OSRC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE TIE TO: ~~*B173T7, B17491*~~ B17490 RE 7-7-03

Special Handling and/or Storage: Cool 4°C

Preservation	Cool 4C	None	None
Type of Container	aG	aG	aG
No. of Container(s)	1	1	1
Volume	60mL	60mL	60mL
SAMPLE ANALYSIS	NO2/NO3 - 353.2; Oil & Grease - 413.1; Chromium Hex - 7196	See item (1) in Special Instructions.	Tritium - H3

(Columns 2 and 3 lined out: N/A 7-1-03)

Sample No.	Matrix *	Sample Date	Sample Time			
B173T6	SOIL	7-1-03	0830	X		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Kevin Dugbs	7-1-3 15:12	MO-026 ref. 2	7-1-3 15:12
MO-026 Ref 2	7-2-03 1130	[signature]	7-2-03 1130
[signature]	7-2-03 1130	ERC R. Fahlberg	7-2-03 1130
ERC R FAHLBERG	7-2-03 1130	1A 3728	7-2-03 1130
1A 3728	7-7-03 1000	ERC R FAHLBERG	7-2-03 1000
ERC R FAHLBERG	7-2-03 1000	Fed Ex	

SPECIAL INSTRUCTIONS 7-1-03

~~The lab is to achieve a detection limit of 50.0 pCi/g for C-14.~~ Report kerosene and diesel range compounds from WTPH-D analysis. FH acknowledges that holding times (less than 14 days) may not be met by the lab due to the radl characteristics. 7-1-03

~~(1) Technetium-99; Strontium-89,90 = Total Sr, Isotopic Thorium (Thorium-232); Carbon-14; Iodine-129; Nickel-63; Neptunium-237~~

Matrix *: S=Soil, SE=Sediment, SO=Solid, SI=Sludge, W=Water, O=Oil, A=Air, DS=Drum Solids, DL=Drum Liquids, T=Tissue, WI=Wipe, L=Liquid, V=Vegetation, X=Other

LABORATORY SECTION	Received By: [signature]	Title: COORD-II	Date/Time: 7/8/03 0930
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (03/01/2002)

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

IENT: TNC - HANFORD

chase Order/Project: 200-PW-2/200/PW-4-OU DATE: 7/8/03

F#) SOW# / Release #: F03-006

boratory SDG #: 0307L752

)TE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1. Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
2. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
3. Airbill # recorded?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
5. Sample containers are intact?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
7. All samples on coc received?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
8. All sample label information matches coc?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	☐ Yes	☑ No	☐ N/A	☐ see Comment #
10. Shipment meets LvL1 Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
11. Where applicable, bar code labels are affixed to coc?	☐ Yes	☐ No	☑ N/A	☐ see Comment #
12. coc signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
13. coc will be faxed or emailed to client?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
14. Project Manager/Client contacted concerning discrepancies? (name/date)	☐ Yes	☐ No	☑ N/A	☐ see Comment #

Cooler # / temp (°C) and Comments:

RC-01-041 1°

Laboratory Sample Custodian:

Laboratory Project Manager:

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-006 H2275

DATE RECEIVED: 07/08/03 LVL LOT # :0307L752

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B173T4						
% SOLIDS	001	S	03L%S089	06/30/03	07/10/03	07/10/03
B173T6						
% SOLIDS	002	S	03L%S089	07/01/03	07/10/03	07/10/03
% SOLIDS	002 REP	S	03L%S089	07/01/03	07/10/03	07/10/03
CHROMIUM VI	002	S	03LVI053	07/01/03	07/21/03	07/21/03
CHROMIUM VI	002 REP	S	03LVI053	07/01/03	07/21/03	07/21/03
CHROMIUM VI	002 MS	S	03LVI053	07/01/03	07/21/03	07/21/03
CHROMIUM VI	002 MSD	S	03LVI053	07/01/03	07/21/03	07/21/03
NITRATE NITRITE	002	S	03LN3C33	07/01/03	07/08/03	07/08/03
NITRATE NITRITE	002 REP	S	03LN3C33	07/01/03	07/08/03	07/08/03
NITRATE NITRITE	002 MS	S	03LN3C33	07/01/03	07/08/03	07/08/03
OIL & GREASE BY GRAV	002	S	03LOG032	07/01/03	07/16/03	07/17/03
OIL AND GREASE BY GR	002 REP	S	03LOG032	07/01/03	07/16/03	07/17/03
OIL AND GREASE BY GR	002 MS	S	03LOG032	07/01/03	07/16/03	07/17/03

LAB QC:

CHROMIUM VI	MB1	S	03LVI053	N/A	07/21/03	07/21/03
CHROMIUM VI	MB1 BS	S	03LVI053	N/A	07/21/03	07/21/03
CHROMIUM VI	MB1 BSD	S	03LVI053	N/A	07/21/03	07/21/03
NITRATE NITRITE	MB1	S	03LN3C33	N/A	07/08/03	07/08/03
NITRATE NITRITE	MB1 BS	S	03LN3C33	N/A	07/08/03	07/08/03
OIL & GREASE BY GRAV	MB1	S	03LOG032	N/A	07/16/03	07/17/03
OIL AND GREASE BY GR	MB1 BS	S	03LOG032	N/A	07/16/03	07/17/03
OIL AND GREASE BY GR	MB1 BSD	S	03LOG032	N/A	07/16/03	07/17/03

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-006 H2275
LVL#: 0307L752

W.O.#: 11343-606-001-9999-00
Date Received: 07-08-03

INORGANIC NARRATIVE

1. This narrative covers the analyses of 2 soil samples.

2. The samples were prepared and analyzed in accordance with the methods indicated on the attached glossary.

3. Sample holding times as required by the method and/or contract were met.

4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.

5. The method blanks were within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS for Oil and Grease was within the 20% Relative Percent Difference (RPD) control limit.

7. The matrix spike recoveries for Chromium VI, Nitrate Nitrite and Oil and Grease were within the 75-125% control limits.

8. The replicate analyses for Percent Solids, Chromium VI, Nitrate Nitrite and Oil and Grease were within the 20% RPD control limit.

9. Results for solid samples are reported on a dry weight basis.

10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

07-24-03
Date

njp\i07-752

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 14 pages.

208 Welsh Pool Road • Exton, PA 19341-1313 • (610) 280-3000 • Fax (610) 280-3041

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	ASTM	SW846	OTHER
% Ash	__ D2216-80		
% Moisture	__ D2216-80		__ ILMO4.0 (e)
% Solids	✓ D2216-80		__ ILMO4.0 (e)
% Volatile Solids	__ D2216-80		
ASTM Extraction in Water	__ D3987-81/85		
BTU	__ D240-87		
CEC		__ 9081	__ c
Chromium VI		✓ 3060A/7196A	
Corrosivity ___ by coupon ___ by pH		__ 1110(mod) __ 9045C	
Cyanide, Total		__ 9010B	__ ILMO4.0 (e)
Cyanide, Reactive		__ Section 7.3/9014	
Halides, Extractable Organic		__ 9020B	__ EPA 600/4/84-008
Halides, Total		__ 9020B	__ EPA 600/4/84-008
EP Toxicity		__ 1310A	
Flash Point		__ 1010	
Ignitability		__ 1010	
Oil & Grease		__ 9071A (mod.)	✓ 413.1 (mod)
Carbon, Total Organic		__ 9060	__ Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	__ D240-87(mod)	__ 5050	
Petroleum Hydrocarbons, Total Recoverable		__ 9071	__ EPA 418.1
pH, Soil		__ 9045C	
Sulfide, Reactive		__ Section 7.3/9030B	
Sulfide		__ 9030B(mod)	
Specific Gravity	__ D1429-76C/	__ D5057-90	
Sulfur, Total		__ 9056	
Synthetic Preparation Leach		__ 1312	
Paint Filter		__ 9095A	

Other: Nitrate Nitrite **Method:** EPA 353.2 (mod.)

Other: **Method**

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 07/21/03

CLIENT: TNUHANFORD F03-006 H2275 LVL LOT #: 0307L752

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B173T4	% Solids	98.0	%	0.01	1.0
-002	B173T6	% Solids	92.8	%	0.01	1.0
		Chromium VI	0.43 u	MG/KG	0.43	1.0
		Nitrate Nitrite	2.7	MG/KG	0.18	1.0
		Oil & Grease Gravimetri	719 u	MG/KG	719	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 07/21/03

CLIENT: TNUHANFORD F03-006 H2275 LVL LOT #: 0307L752
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	03LVI053-MB1	Chromium VI	0.40	u	MG/KG	0.40	1.0
BLANK10	03LN3C33-MB1	Nitrate Nitrite	0.20	u	MG/KG	0.20	1.0
BLANK10	03LOG032-MB1	Oil & Grease Gravimetri	667	u	MG/KG	667	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 07/21/03

CLIENT: TNUHANFORD F03-006 H2275 LVL LOT #: 0307L752

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	B173T6	Soluble Chromium VI	3.8	0.43u	4.3	88.0	1.0
		Insoluble Chromium VI	1630	0.43u	1480	110.2	100
		Nitrate Nitrite	7.8	2.7	4.8	106.1	1.0
		Oil & Grease Gravimetr	7170	719 u	6940	103.2	1.0
BLANK10	03LVI053-MB1	Soluble Chromium VI	3.9	0.40u	4.0	98.4	1.0
		Insoluble Chromium VI	1220	0.40u	1240	97.9	100
BLANK10	03LN3C33-MB1	Nitrate Nitrite	5.2	0.20u	5.0	104.8	1.0
BLANK10	03LOG032-MB1	Oil & Grease Gravimetr	6490	667 u	6440	100.8	1.0
		Oil & Grease - Grav M	6600	667 u	6440	102.5	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 07/21/03

CLIENT: TNUHANFORD F03-006 H2275 LVL LOT #: 0307L752
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	03LOG032-MB1	Oil & Grease - Grav	100.8	102.5	1.7

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 07/21/03

CLIENT: TNUHANFORD F03-006 H2275 LVL LOT #: 0307L752

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	B173T6	% Solids	92.8	95.1	2.5	1.0
		Chromium VI	0.43u	0.43u	NC	1.0
		Nitrate Nitrite	2.7	2.8	3.7	1.0
		Oil & Grease Gravimetri	719 u	719 u	NC	1.0

Lionville Laboratory Use Only

0307L752

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI — Lionville Laboratory Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client TNW-HANFORD SAF # F03-006

Est. Final Proj. Sampling Date

Project # 11347-606-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager OJ

QC SPEC Del STD TAT 30 days

Date Rec'd 7-8-03 Date Due 8-7-03

		A	B	C
Refrigerator #		3	3	3
#/Type Container	Liquid			
	Solid	1AG	1AG	1AG
Volume	Liquid			
	Solid	60	60	60
Preservatives		—	—	

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb, Oil & Grease, NO2 NO3, Cyanide; INORG: Metal, CN

MATRIX CODES	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only: 8260B	8HBGX	IOGGR	INJN2	ICR6
S - Soil, SE - Sediment, SO - Solid, SL - Sludge, W - Water, O - Oil, A - Air, DS - Drum Solids, DL - Drum Liquids, L - EP/TCLP Leachate, WI - Wipe, X - Other, F - Fish	001	B173T4			S	6/30/03	0700	1	1			
	002	" 6			L	7/1/03	0830			1	✓	✓

Special Instructions: SAF # F03-006

Run Matrix QC

DATE/REVISIONS:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Relinquished by	Received by	Date	Time
FedEx	[signature]	7/8/03	093

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or (N)

NOTES: 790339362631

Lionville Laboratory Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___

Airbill # [signature]

2) Ambient or (Chilled)

3) Received in Good Condition (Y) or N

4) Samples Properly Preserved (Y) or N

5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was: 1) Present on Outer Package (Y) or N; 2) Unbroken on Outer Package (Y) or N; 3) Present on Sample (Y) or N; 4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 1 °C

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-006-191	Page 1 of 1

Collector: Pope/Pfister/Hughes/Johansen	Company Contact: LC Hulstrom; Telephone No.: 373-3928	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200-PW-2/200-PW-4 OU - Borehole Soil Sampling	Sampling Location: 216-A-36B (C3248) - 0.5'	SAF No.: F03-006	Air Quality ☐
Ice Chest No.: ERC 01-041	Field Logbook No.: HNF-N-3361; COA: 117504ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030 305	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Potentially Radioactive
Tie To B17490

Special Handling and/or Storage
cool 4°C

Preservation				Cool 4C	Cool 4C							
Type of Container				aG	aG							
No. of Container(s)				1	1							
Volume				60mL	60mL							
SAMPLE ANALYSIS				Pesticides - 8081	Chloro-Herbicides - EPA8151							
Sample No.	**Matrix ***	**Sample Date**	**Sample Time**									
B173T4	SOIL	6-30-03	0700	X	X							

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Kevin Hughes [signature]	6-30 1344	MO-026 Ref Z	6-30-3 13:44
MO-026 Ref Z	7-2-03 1130	[signature]	7-2-03 1130
[signature]	7-2-03 1130	ERC R FAHLBERG [signature]	7-2-03 1130
ERC R FAHLBERG [signature]	7-2-03 1130	LA 3728	7-2-03 1130
LA 3728	7-2-03 1000	ERC R FAHLBERG [signature]	7-2-03 1000
ERC R FAHLBERG [signature]	7-2-03 1000	FedEx	

SPECIAL INSTRUCTIONS
Report kerosene and diesel range compounds from WTPH-D analysis.

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By: [signature]	Title: Coord - II	Date/Time: 7/8/03 0930
FINAL SAMPLE DISPOSITION	Disposal Method:	Disposed By:	Date/Time:

BHI-EE-011 (03/01/2002)

FH-Central Plateau Project | **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** | F03-006-192

Collector Pope/Pfister/Hughes/Johansen	**Company Contact** LC Hulstrom / **Telephone No.** 373-3928	**Project Coordinator** TRENT, SJ	**Price Code** 8N / **Data Turnaround** 45 Days
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling	**Sampling Location** 216-A-36B (C3248) - 12.5-15'	**SAF No.** F03-006	**Air Quality** ☐
Ice Chest No. ERC 01-041	**Field Logbook No.** HNF-N-3361 / **COA** 117504ES10	**Method of Shipment** Federal Express	
Shipped To ~~EBERLINE SERVICES (Formerly TMA)~~ TMO 7-1-03 Recra	**Offsite Property No.** A030 305	**Bill of Lading/Air Bill No.** SEE OSRC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE TIE TO: ~~B173T7, B17491~~ B17490 RE 7-7-03

Special Handling and/or Storage

Cool 4°C

Preservation	Cool 4C	None	None
Type of Container	aG	aG	aG
No. of Container(s)	1	1	1
Volume	60mL	60mL	60mL
SAMPLE ANALYSIS	NO2/NO3 - 353.2; Oil & Grease - 413.1; Chromium Hex - 7196	See item (1) in Special Instructions.	Tritium - H3

(Columns 2–3 lined out: A 7-1-03)

Sample No.	Matrix *	Sample Date	Sample Time			
B173T6	SOIL	7-1-03	0830	X		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Kevin Hughes	7-1-3 15:12	MO-026 ref. 2	7-1-3 15:12
MO-026 Ref 2	7-2-03 1130	[signature]	7-2-03 1130
[signature]	7-2-03 1130	ERC R FAHLBERG	7-2-03 1130
ERC R FAHLBERG	7-2-03 1130	1A 3728	7-2-03 1130
1A 3728	7-7-03 1000	ERC R FAHLBERG	7-7-03 1000
ERC R FAHLBERG	7-7-03 1000	Fed Ex	

SPECIAL INSTRUCTIONS 7-1-03

~~The lab is to achieve a detection limit of 30.0 pCi/g for C-14.~~ *Report kerosene and diesel range* compounds from WTPH-D analysis. FH acknowledges that holding times (less than 14 days) may not be met by the lab due to the radi characteristics. 7-1-03

~~(1) Technetium-99; Strontium-89,90 -- Total Sr; Isotopic Thorium (Thorium-232); Carbon-14; Iodine-129; Nickel-63; Neptunium-237~~

Matrix *: S=Soil, SE=Sediment, SO=Solid, SI=Sludge, W=Water, O=Oil, A=Air, DS=Drum Solids, DL=Drum Liquids, T=Tissue, WI=Wipe, L=Liquid, V=Vegetation, X=Other

LABORATORY SECTION	Received By [signature]	Title COORD-II	Date/Time 7/8/03 0930
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-006: 200-PW-2/PW-4
Group #: WSCF20030851

Sample #	Client ID			CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W030000584	B17490	F03-006	TRENT	12587-46-1	Alpha by liquid scintillation	SOLID	LA-508-421	U	1.20	pCi/g		1.9	07/01/03	06/30/03	06/30/03
W030000584	B17490	F03-006	TRENT		Alpha error by LC	SOLID	LA-508-421		385	%		0.0	07/01/03	06/30/03	06/30/03
W030000584	B17490	F03-006	TRENT	12587-47-2	Beta by liquid scintillation	SOLID	LA-508-421		8.40	pCi/g		2.8	07/01/03	06/30/03	06/30/03
W030000584	B17490	F03-006	TRENT		Beta error by LC	SOLID	LA-508-421		85.0	%		0.0	07/01/03	06/30/03	06/30/03

MDL=Minimum Detection Limit U - Analyzed for but not detected above limiting criteria.
RQ=Result Qualifier

DF=Dilution Factor

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

.IENT: TNU - HANFORD

rchase Order/Project: 200-PW-2/200/PW-4-OU DATE: 7/8/03

F#) SOW# / Release #: F03-006

.boratory SDG #: 0307L 752

OTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1. Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
2. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
3. Airbill # recorded?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
5. Sample containers are intact?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
7. All samples on coc received?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
8. All sample label information matches coc?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	☐ Yes	☑ No	☐ N/A	☐ see Comment #
10. Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
11. Where applicable, bar code labels are affixed to coc?	☐ Yes	☐ No	☑ N/A	☐ see Comment #
12. coc signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
13. coc will be faxed or emailed to client?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
14. Project Manager/Client contacted concerning discrepancies? (name/date)	☐ Yes	☐ No	☑ N/A	☐ see Comment #

Cooler # / temp (°C) and Comments:

IRC-01-041 1°

Laboratory Sample Custodian:

Laboratory Project Manager: